



STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

May 2018

Log No. _____

Code being amended: ☒ **Commercial** Provisions ☐ **Residential** Provisions
(A MS Word version of the code is linked to the name)

Code Section # C202, C403.1.3, Chapter 6

Brief Description:

Revises MLC requirements for data centers to align with newer version of ASHRAE 90.4-2019 and removes extraneous information from last code update.

Proposed code change text: (Copy the existing text from the Integrated Draft, linked above, and then use underline for new text and ~~strikeout~~ for text to be deleted.)

C202 - Definitions

MECHANICAL LOAD COEFFICIENT (MLC). In a *data center*, the ratio of the cooling system's net use of energy to that of the *ITE*. ~~The design MLC is calculated for a local peak weather condition (stipulated in ASHRAE 90.4) and equals the sum of all active cooling equipment input power, divided by total power into the ITE.~~ The annual *MLC* is calculated using hourly ~~TMY3~~ weather data for the data center's location and equals the sum of all energy flowing into the cooling system to respond to that weather, minus any energy successfully recovered to avoid any new energy use, all divided by the energy flowing into the *ITE* during the same period.

~~**ELECTRICAL LOAD COEFFICIENT (ELC).** In a *data center*, the ratio of the sum of three specific electrical losses (or losses calculated from efficiencies) to the *ITE* load itself. Specifically, *ELC* equals the sum of the incoming (to *ITE*) electrical service losses, UPS losses, and *ITE* distribution losses all divided by the peak *ITE* load. The design *ELC* is calculated at the full load design condition with active redundant equipment engaged, and the annual *ELC* is calculated the same way because it is assumed that *ITE* runs constantly at full power all year.~~

C403.1.3 Data centers. *Data center systems* shall comply with Sections 6 and 8 of ASHRAE Standard 90.4, with the following changes:

- ~~1. Replace design mechanical load component (MLC) values specified in Table 6.2.1.1 of ASHRAE 90.4 with the following values as applicable in each climate zone:~~

~~Zone 4C Design MLC = 0.21~~

~~Zone 5B Design MLC = 0.23~~

- ~~2.1.~~ Replace annualized MLC values specified in Table 6. ~~52.1.2~~ of ASHRAE Standard 90.4 with the following values as applicable in each climate zone:

Zone 4C Annual MLC for Data Center ITE Design Power ≤ 300 kW = 0.16

Zone 5B Annual MLC for Data Center ITE Design Power ≤ 300 kW = 0.16

Chapter 6. Referenced Standards

90.4—2019 Energy Standard for Data Centers (with Addenda a, b, d, e)..... C403.1.3

Purpose of code change:

ASHRAE has released an updated version of 90.4 that has substantially reduced MLC values compared to the 2016 version. The WSEC needs to update its references to align with this new version, and also remove provisions that no longer exist in 90.4-2019.

The table in 90.4-2019 reads as follows and the changes we suggest are shown in red.

Table 6.5 Maximum Annualized Mechanical Load Component (Annualized MLC)

Climate Zones as Listed in ASHRAE Standard 169	HVAC Maximum Annualized MLC for Data Center ITE Design Power > 300 kW	HVAC Maximum Annualized MLC for Data Center ITE Design Power ≤ 300 kW
0A	0.25	0.31
0B	0.28	0.34
1A	0.26	0.31
1B	0.27	0.32
2A	0.23	0.29
3A	0.21	0.27
4A	0.18	0.26
5A	0.16	0.25
6A	0.16	0.24
2B	0.17	0.27
3B	0.17	0.26
4B	0.14	0.24
5B	0.14	0.23 0.16
6B	0.14	0.24
3C	0.14	0.23
4C	0.14	0.23 0.16
5C	0.14	0.23
7	0.14	0.23
8	0.13	0.22

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